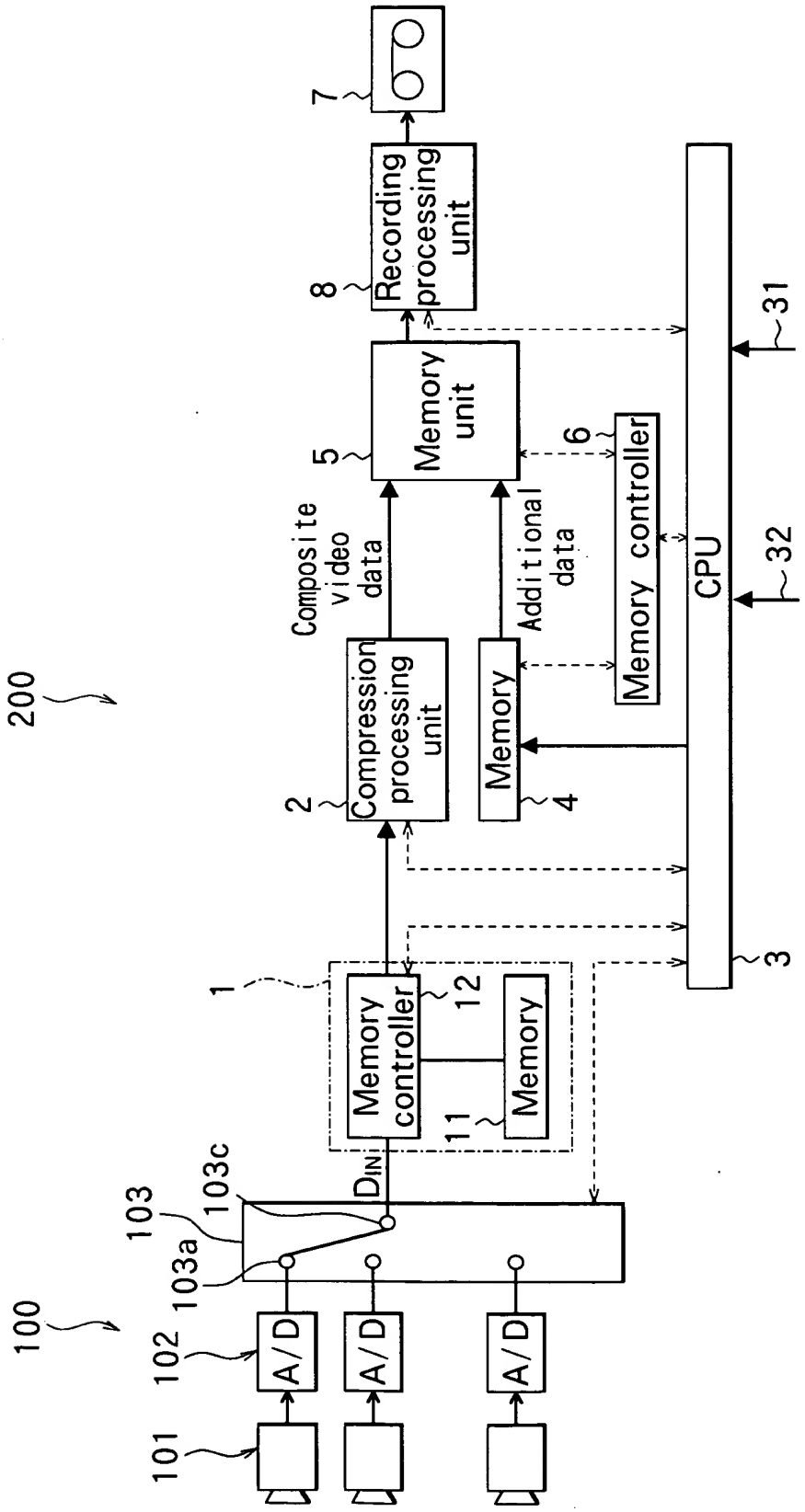

100
200
101
102
A/D
A/D
A/D
103
103a
103c
D_{IN}
1
Memory controller
12
11
Memory
2
Compression processing unit
Composite video data
Memory
4
Additional data
Memory controller
6
5
Memory unit
8
Recording processing unit
7
CPU
31
32
3

FIG.1

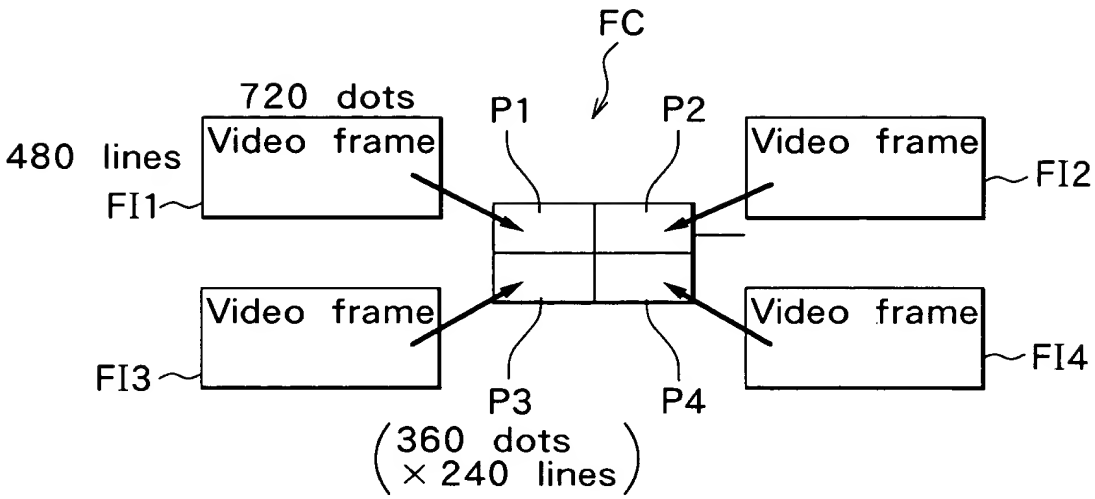

FC
720 dots
480 lines
Video frame
FI1
Video frame
FI2
Video frame
FI3
Video frame
FI4
P1
P2
P3
P4
(360 dots
× 240 lines)

FIG.2

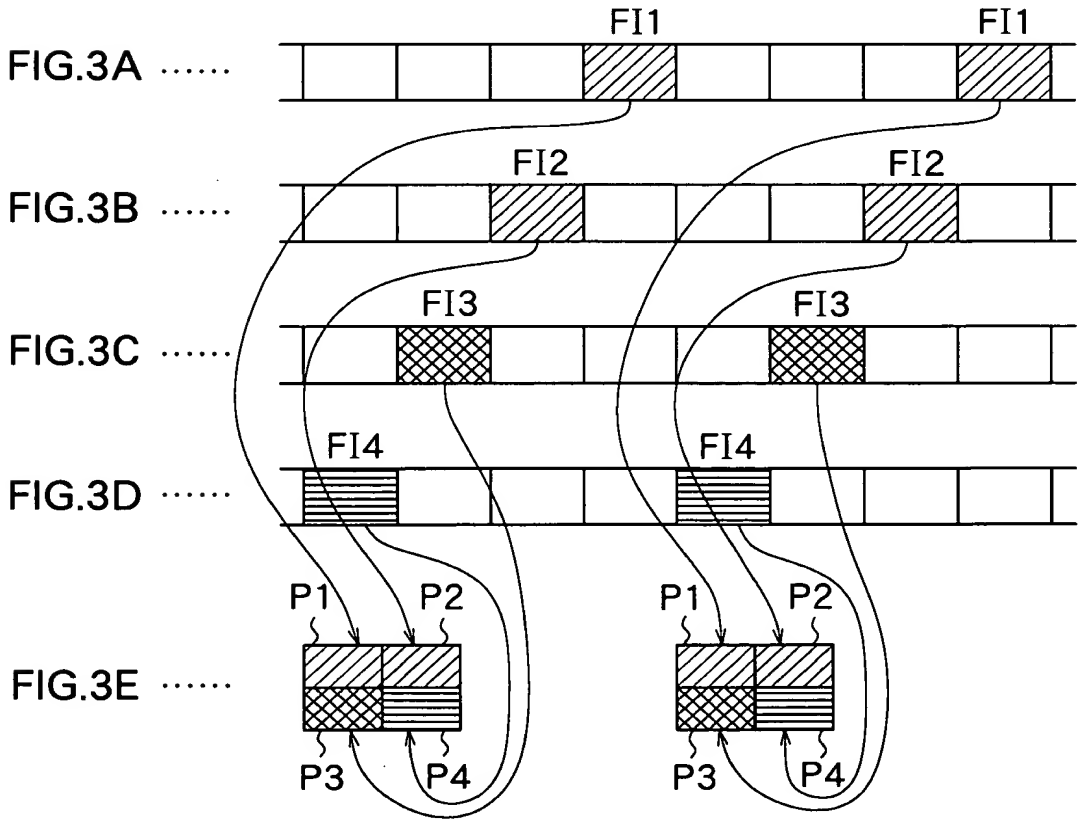


FIG.3A
FIG.3B
FIG.3C
FIG.3D
FIG.3E
FI1
FI2
FI3
FI4
P1
P2
P3
P4

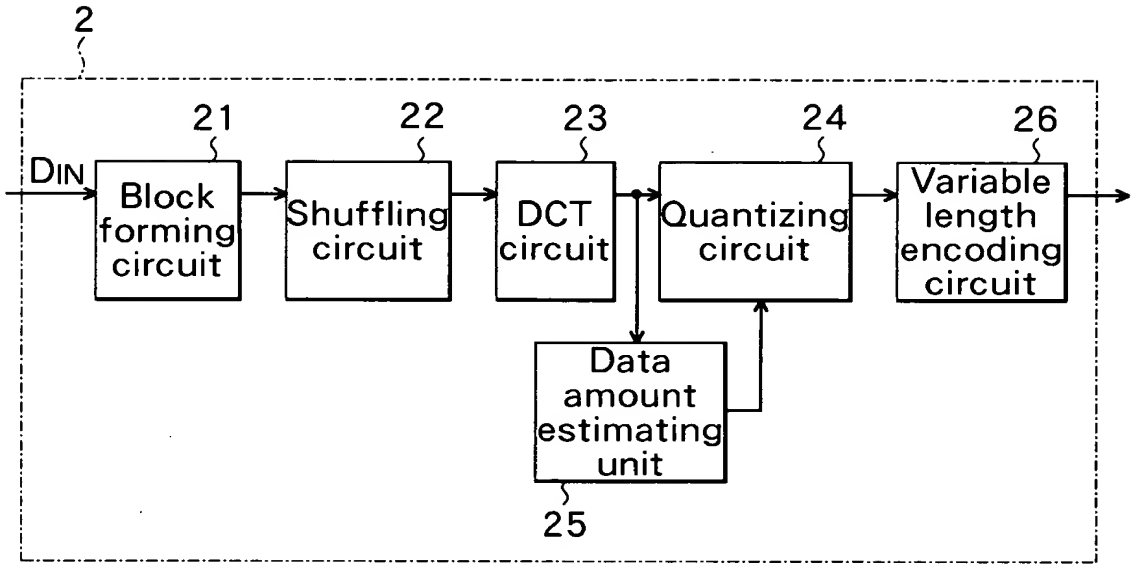

2
21
22
23
24
26
DIN
Block forming circuit
Shuffling circuit
DCT circuit
Quantizing circuit
Variable length encoding circuit
Data amount estimating unit
25

FIG.4

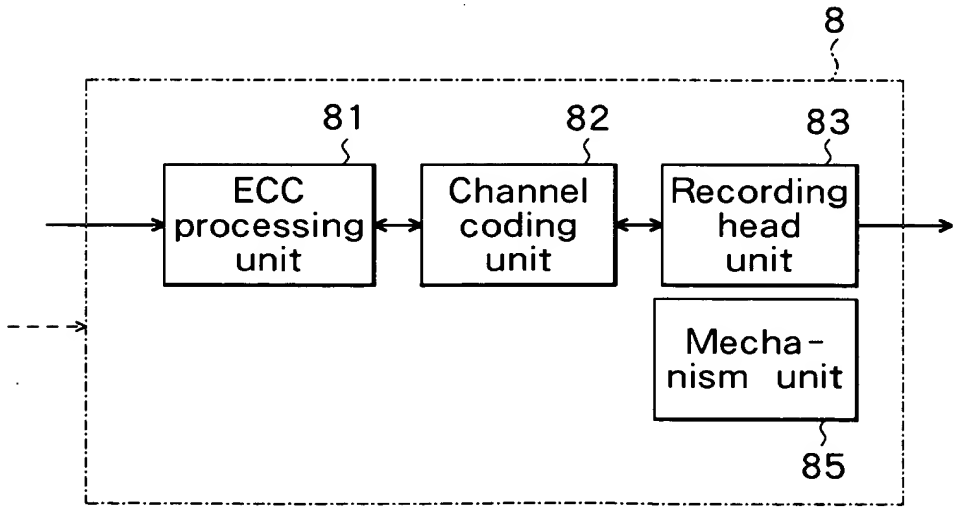

8
81
82
83
ECC processing unit
Channel coding unit
Recording head unit
Mecha-nism unit
85

FIG.5

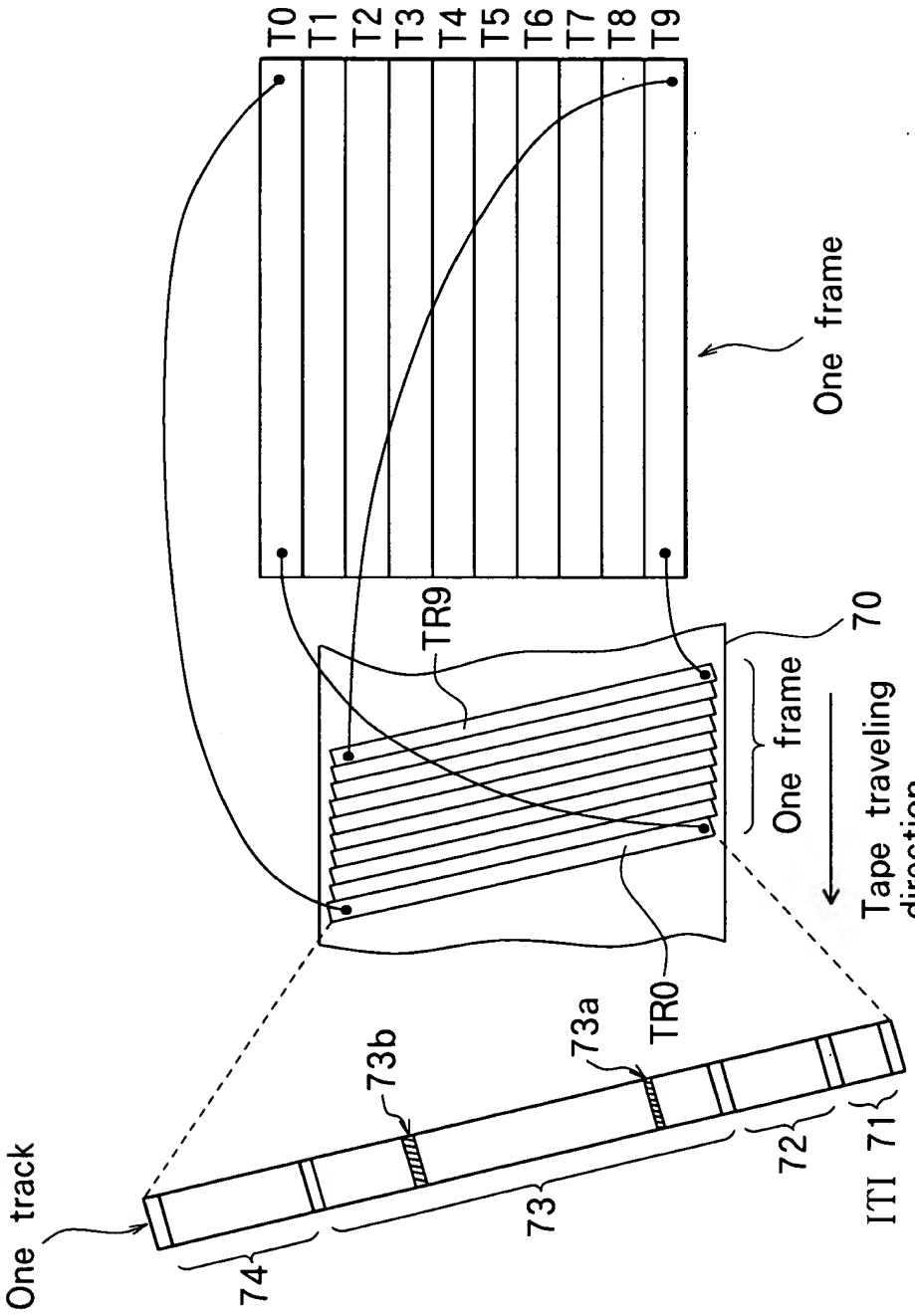


FIG.6A FIG.6B FIG.6C

TR No.

Sync block No.	0	1	2	3	4	5	6	7	8	9
11	13	13	13	13	13	63	63	63	63	63
10	FF	FF	FF	FF	FF	62	62	62	62	62
9	13	13	13	13	13	13	13	13	13	13
8	13	13	13	13	13	FF	FF	FF	FF	FF
7	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF
6	13	13	13	13	13	13	13	13	13	13
5	13	13	13	13	13	63	63	63	63	63
4	FF	FF	FF	FF	FF	62	62	62	62	62
3	13	13	13	13	13	13	13	13	13	13
2	13	13	13	13	13	FF	FF	FF	FF	FF
1	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF
0	13	13	13	13	13	13	13	13	13	13

FIG.7

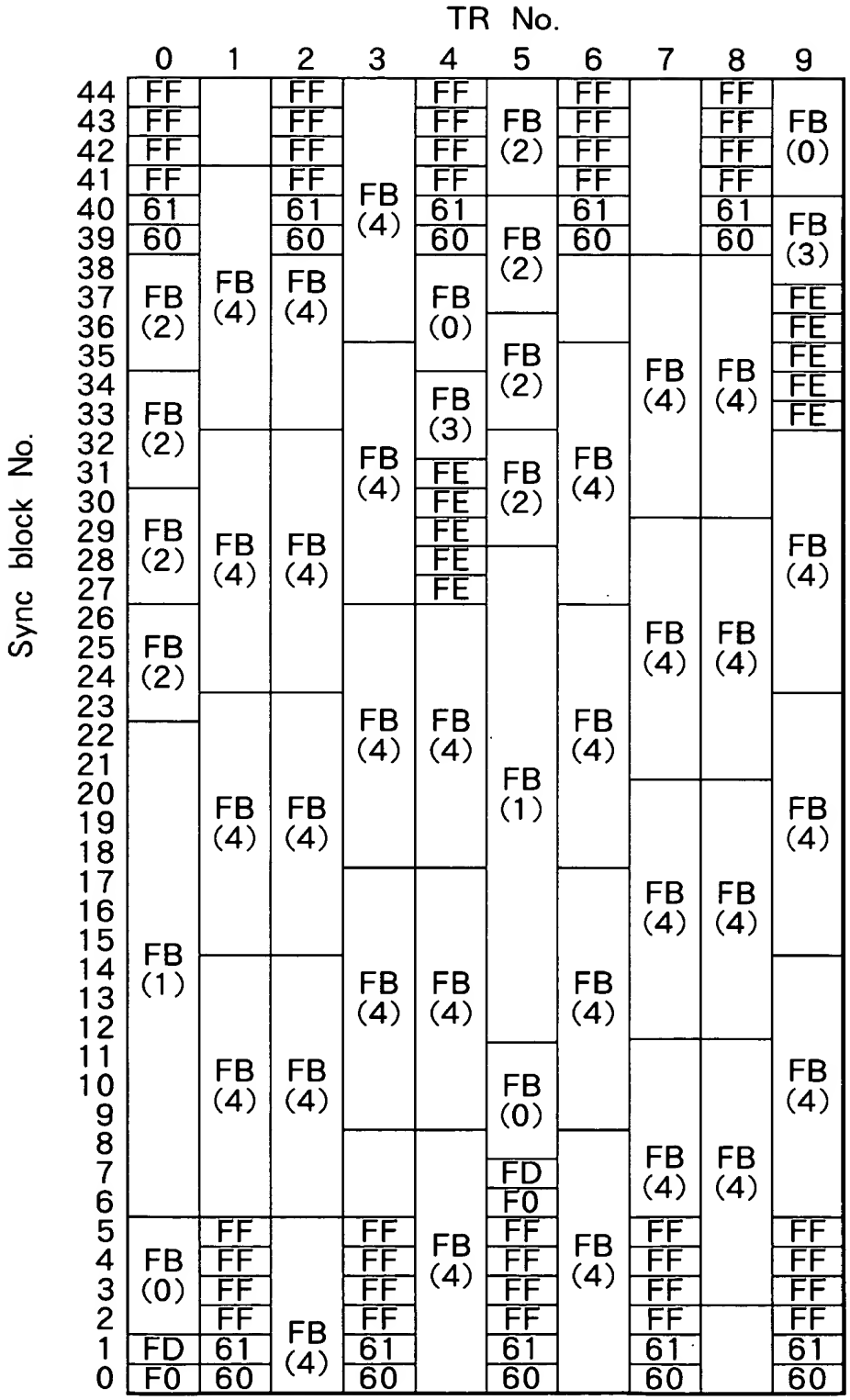

TR No.
0 1 2 3 4 5 6 7 8 9
Sync block No.
44 FF FF FF FF FB (2) FF FF FF FB (0)
43 FF FF FF FF FF FF FF FF
42 FF FF FF FF FF FF FF FF
41 FF FF FF FB (4) FF FB (2) FF FB (4) FF FB (3)
40 61 61 61 61 61 61 61 61
39 60 60 60 60 60 60 60 60
38 FB (2) FB (4) FB (4) FB (0) FB (2) FB (4) FB (4) FB (4) FE
37
36 FE
35 FB (2) FE
34 FB (2) FB (3) FE
33 FE
32 FB (2) FB (4) FB (4) FB (4) FB (2) FB (4) FB (4) FB (4) FB (4)
31 FE
30 FE
29 FB (2) FB (4) FB (4) FE FB (2)
28 FE
27 FE
26 FB (2) FB (4) FB (4) FB (4) FB (4) FB (4) FB (4) FB (4)
25
24
23 FB (4) FB (4) FB (4) FB (4) FB (4) FB (4) FB (4)
22
21 FB (1) FB (1)
20 FB (4) FB (4) FB (4) FB (4) FB (4) FB (4) FB (4) FB (4)
19
18
17 FB (4) FB (4) FB (4) FB (4) FB (4) FB (4) FB (4)
16
15
14 FB (4) FB (4) FB (4) FB (4) FB (4) FB (4) FB (4) FB (4)
13
12
11 FB (4) FB (4) FB (0) FB (4) FB (4) FB (4)
10
9
8 FD FB (4) FB (4)
7
6 F0
5 FF FF FF FF FF FF FF FF FF FF
4 FB (0) FF FF FF FF FF FF FF FF FF FF
3 FF FF FF FF FF FF FF FF FF FF
2 FF FF FF FF FF FF FF FF FF FF
1 FD 61 FB (4) 61 FB (4) 61 61 FB (4) 61 61 61
0 F0 60 60 60 60 60 60 60 60 60

FIG.8

	Bit-7	Bit-6	Bit-5	Bit-4	Bit-3	Bit-2	Bit-1	Bit-0
PC0	0	1	1	0	0	0	1	0
PC1	DS	TM	TIME ZONE					
PC2	1	1	DAY					
PC3	WEEK			MONTH				
PC4	YEAR							

FIG.9

	Bit-7	Bit-6	Bit-5	Bit-4	Bit-3	Bit-2	Bit-1	Bit-0
PC0	0	1	1	0	0	0	1	1
PC1	S2	S1	TENS of FRAMES		UNITS of FRAMES			
PC2	S3	TENS of SECONDS			UNITS of SECONDS			
PC3	S4	TENS of MINUTES			UNITS of MINUTES			
PC4	S6	S5	TENS of HOURS		UNITS of HOURS			

FIG.10

	Bit-7	Bit-6	Bit-5	Bit-4	Bit-3	Bit-2	Bit-1	Bit-0
PC0	1	1	1	1	1	1	0	1
PC1	← MULTI PACK DATA CODE →							
PC2	TT	1	1	1	←			
PC3	← TDP →							
PC4	1	1	←					

FIG.11

	Bit-7	Bit-6	Bit-5	Bit-4	Bit-3	Bit-2	Bit-1	Bit-0
PC0	1	1	1	1	1	0	1	1
PC1	VERSION				EXTENSION CODE			
PC2	NO OF PACKS							
PC3								
PC4								

FIG.12

G0

	Bit-7	Bit-6	Bit-5	Bit-4	Bit-3	Bit-2	Bit-1	Bit-0
PC0	1	1	1	1	1	0	1	1
PC1	0	0	0	1	0	0	0	0
PC2	NO OF PACKS							
PC3	E8	E7	E6	E5	E4	E3	E2	E1
PC4	E16	E15	E14	E13	E12	E11	E10	E9

G1

	Bit-7	Bit-6	Bit-5	Bit-4	Bit-3	Bit-2	Bit-1	Bit-0
PC0	1	1	1	1	1	0	1	1
PC1	0	0	0	1	1	1	1	0
PC2	NO OF CAMERAS				DIVIDE MODE			
PC3	CAMERA No. (DIVISION-2)				CAMERA No. (DIVISION-1)			
PC4	CAMERA No. (DIVISION-4)				CAMERA No. (DIVISION-3)			

G2

	Bit-7	Bit-6	Bit-5	Bit-4	Bit-3	Bit-2	Bit-1	Bit-0
PC0	1	1	1	1	1	0	1	1
PC1	0	0	0	1	1	1	1	0
PC2	CAMERA No. (DIVISION-6)				CAMERA No. (DIVISION-5)			
PC3	CAMERA No. (DIVISION-8)				CAMERA No. (DIVISION-7)			
PC4	CAMERA No. (DIVISION-10)				CAMERA No. (DIVISION-9)			

G3

	Bit-7	Bit-6	Bit-5	Bit-4	Bit-3	Bit-2	Bit-1	Bit-0
PC0	1	1	1	1	1	0	1	1
PC1	0	0	0	1	1	1	1	0
PC2	CAMERA No. (DIVISION-12)				CAMERA No. (DIVISION-11)			
PC3	CAMERA No. (DIVISION-14)				CAMERA No. (DIVISION-13)			
PC4	CAMERA No. (DIVISION-16)				CAMERA No. (DIVISION-15)			

FIG.13

FIG.14A

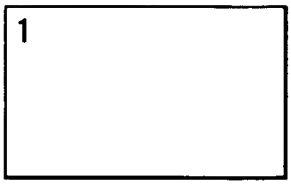


FIG.14B

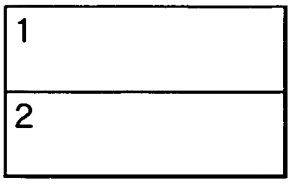


FIG.14C

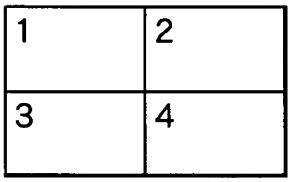


FIG.14D

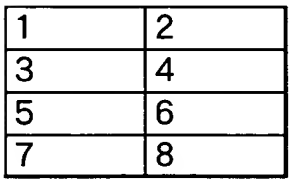


FIG.14E

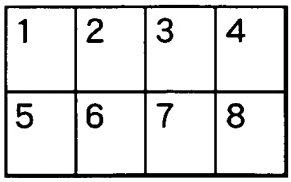


FIG.14F

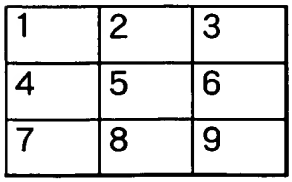
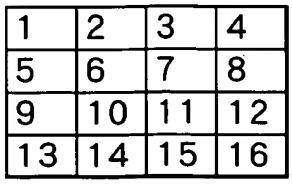


FIG.14G



	Bit-7	Bit-6	Bit-5	Bit-4	Bit-3	Bit-2	Bit-1	Bit-0
PC0	1	1	1	1	1	0	1	1
PC1	0	0	0	1	0	0	0	1
PC2	NO OF PACKS							
PC3								
PC4								

R0

	Bit-7	Bit-6	Bit-5	Bit-4	Bit-3	Bit-2	Bit-1	Bit-0
PC0	1	1	1	1	1	0	1	1
PC1	0	0	0	1	1	1	1	0
PC2	S2	S1	TENS of FRAMES		UNITS of FRAMES			
PC3	S3	TENS of SECONDS			UNITS of SECONDS			
PC4	S4	TENS of MINUTES			UNITS of MINUTES			

R1

	Bit-7	Bit-6	Bit-5	Bit-4	Bit-3	Bit-2	Bit-1	Bit-0
PC0	1	1	1	1	1	0	1	1

R2

PC3	S3	TENS of SECONDS	UNITS of SECONDS
PC4	S4	TENS of MINUTES	UNITS of MINUTES

R15

	Bit-7	Bit-6	Bit-5	Bit-4	Bit-3	Bit-2	Bit-1	Bit-0
PC0	1	1	1	1	1	0	1	1
PC1	0	0	0	1	1	1	1	0
PC2	S2	S1	TENS of FRAMES		UNITS of FRAMES			
PC3	S3	TENS of SECONDS			UNITS of SECONDS			
PC4	S4	TENS of MINUTES			UNITS of MINUTES			

R16

FIG.15

C0

	Bit-7	Bit-6	Bit-5	Bit-4	Bit-3	Bit-2	Bit-1	Bit-0
PC0	1	1	1	1	1	0	1	1
PC1	0	0	0	1	0	0	1	0
PC2	NO OF PACKS							
PC3	1	1	1	1	CAMERA No.			
PC4	CAMERA NAME(CHARACTER-0)							

C1

	Bit-7	Bit-6	Bit-5	Bit-4	Bit-3	Bit-2	Bit-1	Bit-0
PC0	1	1	1	1	1	0	1	1
PC1	0	0	0	1	1	1	1	0
PC2	CAMERA NAME(CHARACTER-1)							
PC3	CAMERA NAME(CHARACTER-2)							
PC4	CAMERA NAME(CHARACTER-3)							

C2

	Bit-7	Bit-6	Bit-5	Bit-4	Bit-3	Bit-2	Bit-1	Bit-0
PC0	1	1	1	1	1	0	1	1
PC1	0	0	0	1	1	1	1	0
PC2	CAMERA NAME(CHARACTER-4)							
PC3	CAMERA NAME(CHARACTER-5)							
PC4	CAMERA NAME(CHARACTER-6)							

C3

	Bit-7	Bit-6	Bit-5	Bit-4	Bit-3	Bit-2	Bit-1	Bit-0
PC0	1	1	1	1	1	0	1	1
PC1	0	0	0	1	1	1	1	0
PC2	CAMERA NAME(CHARACTER-7)							
PC3	CAMERA NAME(CHARACTER-8)							
PC4	CAMERA NAME(CHARACTER-9)							

FIG.16

PI0

	Bit-7	Bit-6	Bit-5	Bit-4	Bit-3	Bit-2	Bit-1	Bit-0
PC0	1	1	1	1	1	0	1	1
PC1	0	0	0	1	0	0	1	1
PC2	NO OF PACKS							
PC3	Corporate ID							
PC4	Corporate ID							

PI1

	Bit-7	Bit-6	Bit-5	Bit-4	Bit-3	Bit-2	Bit-1	Bit-0
PC0	1	1	1	1	1	0	1	1
PC1	0	0	0	1	1	1	1	0
PC2	Corporate ID							
PC3	Company ID							
PC4	Division ID							

PI2

	Bit-7	Bit-6	Bit-5	Bit-4	Bit-3	Bit-2	Bit-1	Bit-0
PC0	1	1	1	1	1	0	1	1
PC1	0	0	0	1	1	1	1	0
PC2	Model ID							
PC3	Model ID							
PC4	Model ID							

FIG.17

U0

	Bit-7	Bit-6	Bit-5	Bit-4	Bit-3	Bit-2	Bit-1	Bit-0
PC0	1	1	1	1	1	0	1	1
PC1	0	0	0	1	0	1	0	0
PC2	NO OF PACKS							
PC3	1	1	1	1	DIVISION No.			
PC4								

U1

	Bit-7	Bit-6	Bit-5	Bit-4	Bit-3	Bit-2	Bit-1	Bit-0
PC0	1	1	1	1	1	0	1	1
PC1	USER DATA-0							
PC2	USER DATA-1							
PC3	USER DATA-2							
PC4	USER DATA-3							

U2

	Bit-7	Bit-6	Bit-5	Bit-4	Bit-3	Bit-2	Bit-1	Bit-0
PC0	1	1	1	1	1	0	1	1
PC1	USER DATA-4							
PC2	USER DATA-5							

U8

	Bit-7	Bit-6	Bit-5	Bit-4	Bit-3	Bit-2	Bit-1	Bit-0
PC0	1	1	1	1	1	0	1	1
PC1	USER DATA-28							
PC2	USER DATA-29							
PC3	USER DATA-30							
PC4	USER DATA-31							

FIG.18

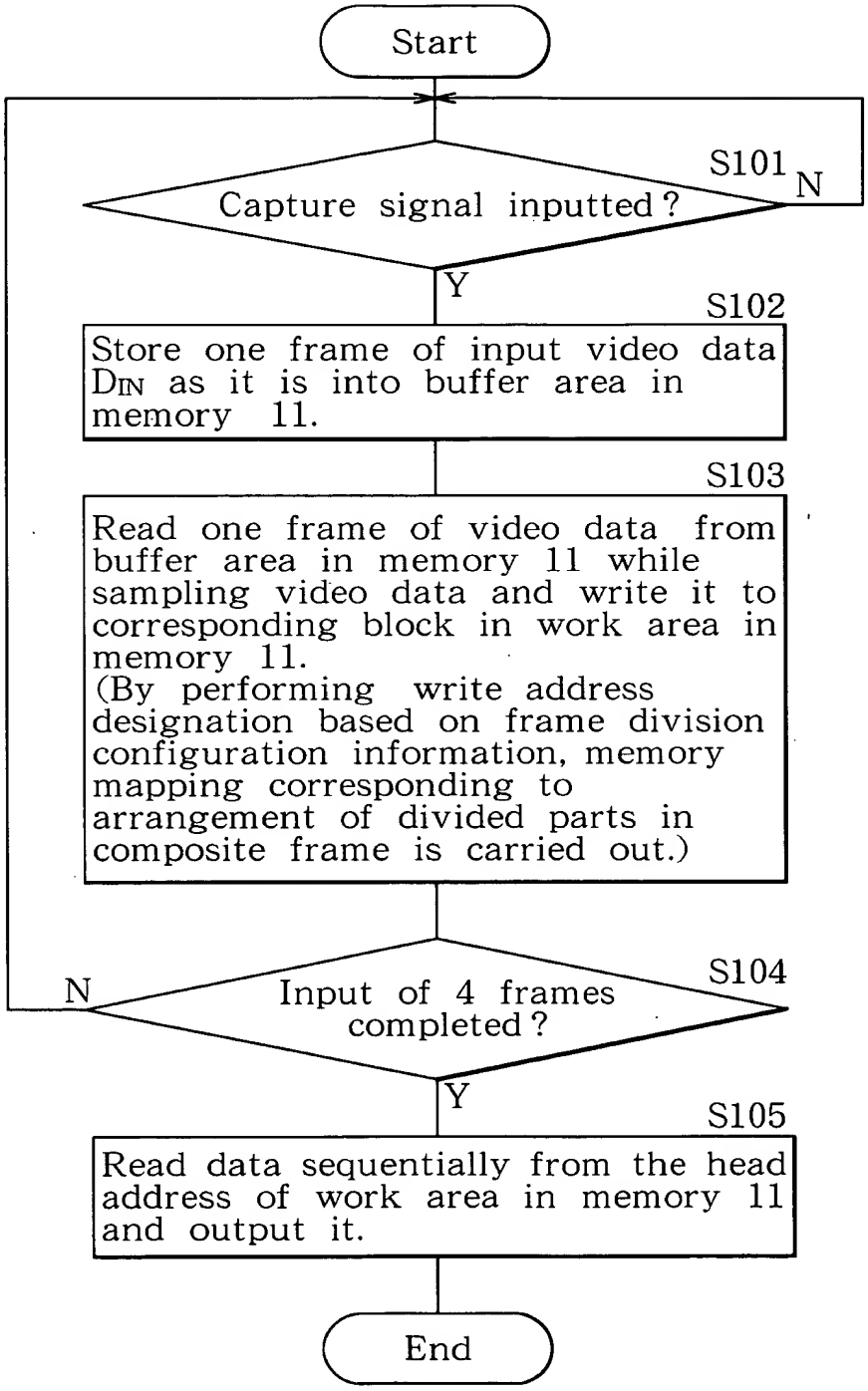

Start
S101
Capture signal inputted?
N
Y
S102
Store one frame of input video data D_{IN} as it is into buffer area in memory 11.
S103
Read one frame of video data from buffer area in memory 11 while sampling video data and write it to corresponding block in work area in memory 11.
(By performing write address designation based on frame division configuration information, memory mapping corresponding to arrangement of divided parts in composite frame is carried out.)
S104
N
Input of 4 frames completed?
Y
S105
Read data sequentially from the head address of work area in memory 11 and output it.
End

FIG.19

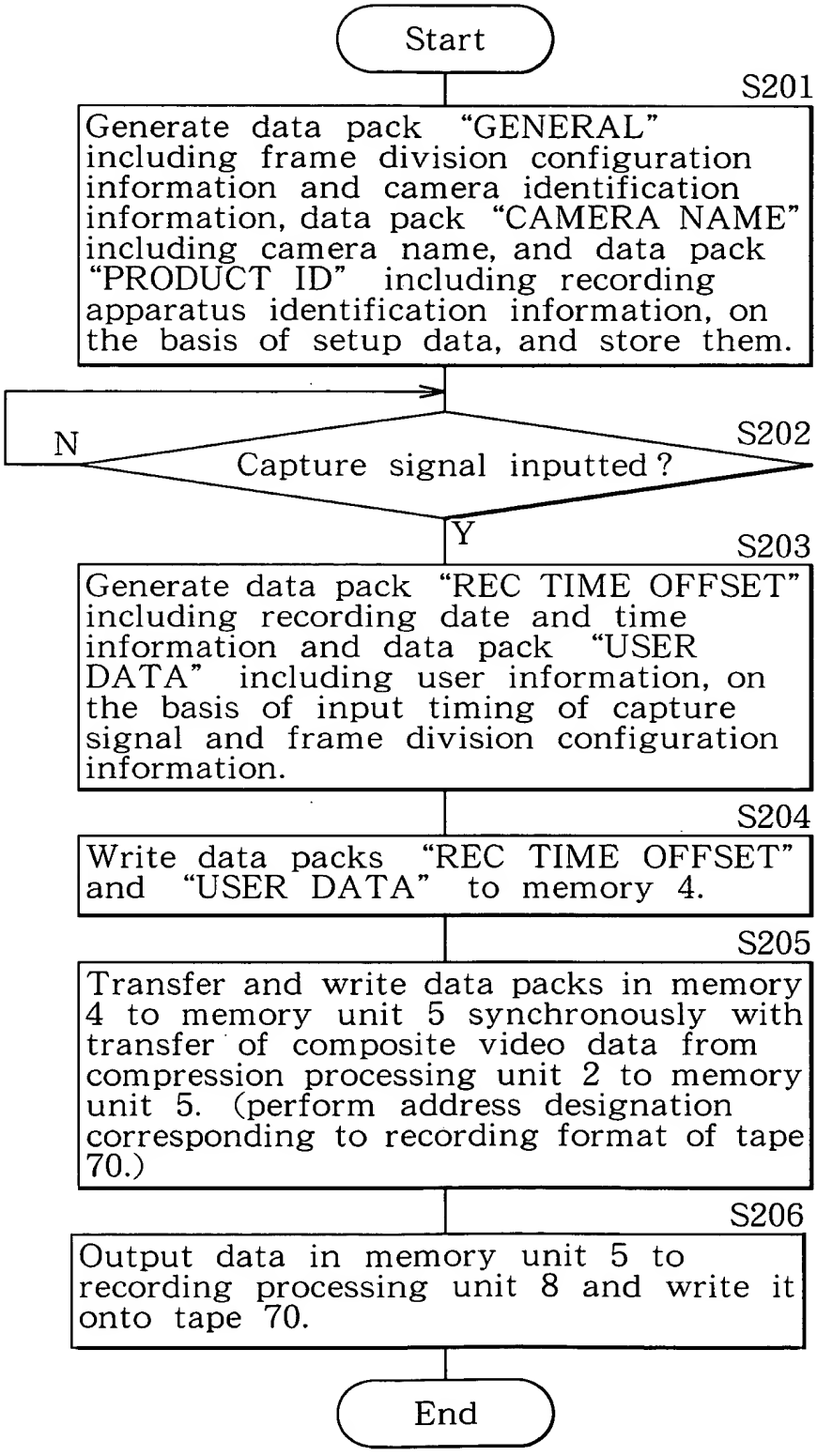

Start
S201
Generate data pack "GENERAL" including frame division configuration information and camera identification information, data pack "CAMERA NAME" including camera name, and data pack "PRODUCT ID" including recording apparatus identification information, on the basis of setup data, and store them.
N
S202
Capture signal inputted ?
Y
S203
Generate data pack "REC TIME OFFSET" including recording date and time information and data pack "USER DATA" including user information, on the basis of input timing of capture signal and frame division configuration information.
S204
Write data packs "REC TIME OFFSET" and "USER DATA" to memory 4.
S205
Transfer and write data packs in memory 4 to memory unit 5 synchronously with transfer of composite video data from compression processing unit 2 to memory unit 5. (perform address designation corresponding to recording format of tape 70.)
S206
Output data in memory unit 5 to recording processing unit 8 and write it onto tape 70.
End

FIG.20

C1
C2
C3
C4
C5
C6
C7
C8
C9
C10
C11
C12
C13
C14
C15
C16

FIG.21A

FIG.21B

(D1) C1	(D2) C2	(D3) C3	(D4) C4
(D5) C5	(D6) C6	(D7) C7	(D8) C8
(D9) C9	(D10) C10	(D11) C11	(D12) C12
(D13) C13	(D14) C14	(D15) C15	(D16) C16

FIG.21C

(D1) C1	(D2) C2	(D3) C3	(D4) C4
(D5) C5	(D6) C6	(D7) C7	(D8) C8
(D9) C9	(D10) C10	(D11) C11	(D12) C12
(D13) C13	(D14) C14	(D15) C15	(D16) C16

.....

C1
C2
C3
C4
C5
C6
C7
C8
C9
C10
C11
C12
C13
C14
C15
C16

FIG.22A

FIG.22B

(D1) C1	(D2) C2
(D3) C3	(D4) C4

FIG.22C

(D1) C5	(D2) C6
(D3) C7	(D4) C8

FIG.22D

(D1) C9	(D2) C10
(D3) C11	(D4) C12

FIG.22E

(D1) C13	(D2) C14
(D3) C15	(D4) C16

FIG.22F

(D1) C1	(D2) C2
(D3) C3	(D4) C4

.....

FIG.23A

(D1) C1	(D2) C2
(D3) C3	(D4) C4

FIG.23B

(D1) C5	(D2) C6
(D3) C7	(D4) C8

FIG.23C

(D1) C9	(D2) C10
(D3) C11	(D4) C12

FIG.23D

(D1) C13	(D2) C14
(D3) C15	(D4) C16

FIG.23E

(D1) C1	(D2) C2	(D3) C3	(D4) C4
(D5) C5	(D6) C6	(D7) C7	(D8) C8
(D9) C9	(D10) C10	(D11) C11	(D12) C12
(D13) C13	(D14) C14	(D15) C15	(D16) C16

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C1
C2
C3
C4
C5
C6
C7
C8

C9
C10
C11
C12
C13
C14
C15
C16

FIG.24A

FIG.24B

(D1) C1	(D2) C2
(D3) C3	(D4) C4
(D5) C5	(D6) C6
(D7) C7	(D8) C8

FIG.24C

(D1) C9	(D2)C10
(D3)C11	(D4)C12
(D5)C13	(D6)C14
(D7)C15	(D8)C16

FIG.24D

(D1) C1	(D2) C2
(D3) C3	(D4) C4
(D5) C5	(D6) C6
(D7) C7	(D8) C8

FIG.24E

(D1) C9	(D2)C10
(D3)C11	(D4)C12
(D5)C13	(D6)C14
(D7)C15	(D8)C16

⋮

FIG.25A .....

FIG.25B .....

FIG.25C .....

FIG.25D .....
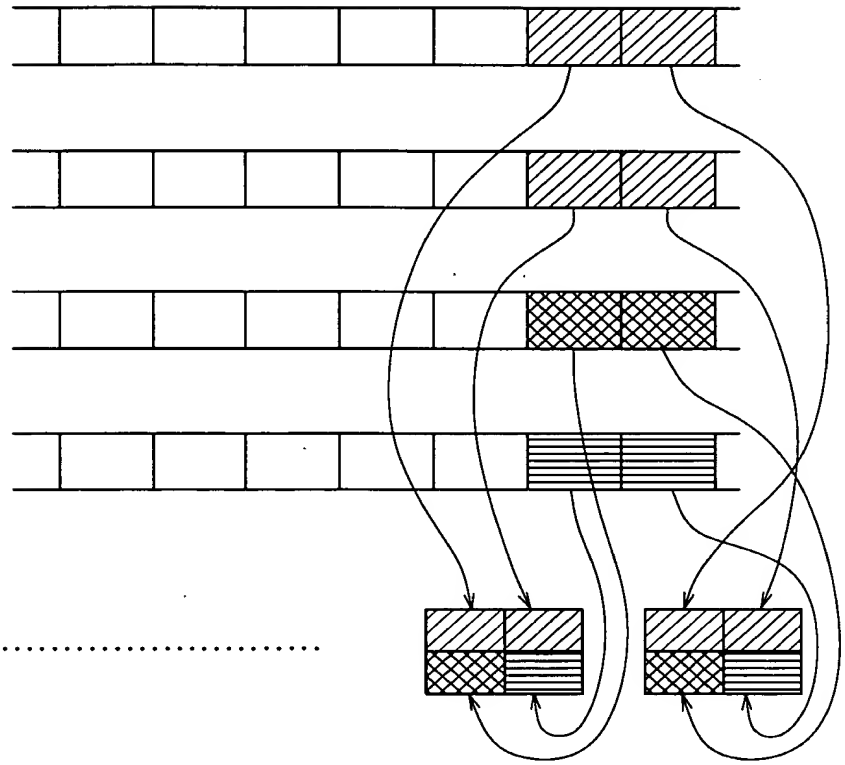
FIG.25E .....